

# CARNEGIE

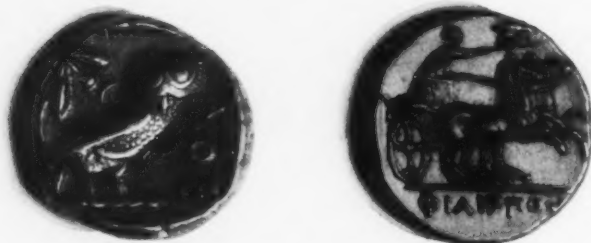
*Magazine*



THE VILLAGE SLOPE

UNIVERSITY OF MICHIGAN  
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## The Economy of Ancient Greece



*Coins of early Greece. LEFT: Tetradrachm, an early silver piece coined in Athens in the 5th Century B.C. RIGHT: Gold stater, coined in Macedonia in the 4th Century B.C.*

**T**HE FIRST COINS produced in Europe—crude lumps of silver stamped with a tortoise figure—were made in ancient Greece. Each town or city produced its own coins. This was practical as long as trade remained purely local.

Later a need for a coin with wider acceptance developed. This need was finally filled by a gold stater put out by Philip the Second of Macedonia (359-336 B.C.). Because of their uniformity in weight and of gold content, and because of their beautiful and easily recognized design, they were widely accepted in trade and served as patterns for the coins of half of Europe for about two centuries. This increasing use of currency was soon followed by a primitive banking system, which handled accounts for merchants and issued “letters of credit.”

Thus, standardized currencies and banking systems slowly developed to meet the needs of expanding commercial life. The monetary and banking systems of today are the logical outgrowth of the financial needs of our present-day economy.

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# Calendar of Events

## CARNEGIE INSTITUTE

4400 FORBES STREET, PITTSBURGH 13, PENNSYLVANIA

TUESDAYS 10:00 A.M. TO 10:00 P.M.

OTHER WEEKDAYS 10:00 A.M. TO 5:00 P.M., EXCEPT CHRISTMAS

FINE ARTS GALLERIES AND COMMUNITY CHEST EXHIBIT OPEN TO 10:00 P.M., WEEKDAYS THROUGH DECEMBER 21

SUNDAYS 2:00 TO 6:00 P.M., EXCEPT DECEMBER 24

CAFETERIA OPEN FOR VISITORS TO THE BUILDING

LUNCHEON 11:00 A.M. TO 2:00 P.M., WEEKDAYS

SNACK BAR: 2:00 TO 7:00 P.M., WEEKDAYS; 2:00 TO 5:30 P.M., SUNDAYS

DINNER 6:00 TO 8:00 P.M., TUESDAYS AND THURSDAYS EXCEPT DECEMBER 19, 26, 28

## CARNEGIE LIBRARY OF PITTSBURGH

WEEKDAYS 9:00 A.M. TO 9:00 P.M.

REFERENCE SERVICES UNTIL 10:00 P.M., WEEKDAYS

SUNDAYS 2:00 TO 6:00 P.M., REFERENCE SERVICES ONLY

*Institute and Library open to the public every day without charge; closed, however, December 24 and 25*

### CHRISTMAS CAROL FESTIVAL

Sunday afternoon, December 10, brings the "United We Sing" carol festival to Music Hall, with one-hour performances at both 2:00 and 4:00 o'clock—but come early to get a seat!

Nearly seven hundred singers from the Pittsburgh area, wearing colorful dress of their national heritage or church robes, will join to celebrate in music the great event of the Christian calendar, each of the nineteen separate groups presenting Yuletide music of a different nation.

The Carnegie Tech bagpipers will open the program, the combined chorus will sing *Jesu Bambino, O Holy Night*, and the Hallelujah Chorus from *The Messiah*, and audience and choristers will join in *The First Noel*, *Adeste Fidelis*, and *Silent Night, Holy Night*.

This Christmas festival is being recorded for Voice of America, will be broadcast at 2:00 P.M. from WHOD, and will also be amplified throughout the Institute. Thus it would be possible to enjoy the 1950 Pittsburgh International Art Exhibit while hearing the traditional Christmas music from many lands, sung in its original wording.

### MAKE FRIENDS WITH BOOKS

Children's books suggested as holiday gifts will be on display in the Boys and Girls Room of the Library beginning Tuesday evening, December 5, at 8:00 o'clock. A program in Lecture Hall at 8:30 will mark the opening, with Elizabeth M. Riley, children's book editor for Thomas Y. Crowell and Company, and Virginia Chase, head of the Boys and Girls Department of the Library, speaking on the theme, "Make Friends With Books."

### THE VILLAGE SLOPE



A painting by Paul Sample on the cover of the December issue of CARNEGIE MAGAZINE has almost become a habit. Two years ago *Nearing Home* was reproduced.

This year it is *The Village Slope*, now in the 1950 Pittsburgh International until December 21. It was lent for the exhibition by Abbott Laboratories, the fortunate owners of the picture.

The artist's comment on the painting is: "The *Village Slope* was painted last year. I had made drawings of the village—or rather, the small settlement, for it is hardly large enough for a village—during the previous summer. I had at that time planned a summer picture. During the winter I kept thinking about the pictorial aspects of that group of rural houses and I wanted to see how it looked there in the winter time. I arrived there again—the spot is near the Canadian border in northern Vermont—one cold clear winter morning and found the youngsters skiing on a nearby slope. This proved to be the starting point of the painting."

**BEQUESTS**—In making a will, money left to Carnegie Institute, Carnegie Institute of Technology, or Carnegie Library of Pittsburgh should be covered by the following phrase: I do hereby give and bequeath to (Carnegie Institute) or (Carnegie Institute of Technology) or (Carnegie Library of Pittsburgh) in the City of Pittsburgh, Pennsylvania. . . . . Dollars

**MEMORIALS**—Carnegie Institute is prepared to receive contributions given by friends in memory of deceased persons in lieu of floral tribute, and to notify the deceased's family of such gift. The amount of the contribution will not be specified unless requested by the donor.

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## TUESDAY EVENING SERIES

Music Hall, 8:15 P.M.

Admission only by Carnegie Institute Society membership card, until 8:10 P.M.

Hall opened to nonmembers at 8:10 P.M.

### December 5—LOVELY BALI TODAY

Deane Dickason, radio news analyst and globe-trotter, will show his pictures of the gentle, charming Balinese people in their "unsullied corner of heaven."

### December 12—SOUTH KOREA, BATTLEGROUND FOR FREEDOM

Col. Homer F. Kellems, former chief of troop information on MacArthur's general staff in Tokyo, and a professional photographer, will show the only complete color motion picture of South Korea in existence, taken this last year.

## ORGAN RECITALS

Featuring music of the Christmas Season

By Marshall Bidwell

Sundays, 4:00 to 5:00 P.M., in Music Hall

Sponsored by Arbuckle-Jamison Foundation

Organ recital omitted on December 24

Saturdays, 10:00 A.M., a broadcast from WWSW

## FOR THE CHILDREN

STORY HOUR at the Library

Each Saturday, 2:00 P.M.

MOVING PICTURES in Lecture Hall

Saturdays, December 2, 9, and 16, 2:30 P.M.

PRE-SCHOOL STORY HOUR at the Library

Tuesday, December 12, 10:30 A.M.

with a talk for mothers at the same time  
by Catherine G. Hay on "Decorating for Christmas"

## THE INDEX

to Volumes XXIII and XXIV of

CARNEGIE MAGAZINE

June 1949 through December 1950

is now being compiled

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4400 Forbes Street

Pittsburgh 13, Pa.

## 1950 PITTSBURGH INTERNATIONAL

The exhibit of 360 oils, of which 252 are by European artists and the remainder by Americans, all painted within the last five years, continues in the galleries only through December 21. Visitors are now voting, until December 17, for their choice to receive the Popular Prize.

## AMERICAN PRINTS, 1950

A selection of 114 prints from the eighth annual Pennell exhibition at the Library of Congress last summer continues on display this month on the balcony of the Hall of Sculpture.

## COMMUNITY CHEST

The display by the Pittsburgh Photographic Library, entitled "People in Pictures," dramatizing the urgency of Community Chest support, continues at the Museum.

# For a Friendly Christmas

## A GIFT MEMBERSHIP IN CARNEGIE INSTITUTE SOCIETY

- |   |  |
|---|--|
| <input type="checkbox"/> Junior Member*.....\$ 5    | <input type="checkbox"/> Contributing Member.....\$25-\$100  |
| <input type="checkbox"/> Associate Member.....\$10  | <input type="checkbox"/> Sustaining Member.....\$100-\$1,000 |
| <input type="checkbox"/> Supporting Member.....\$15 | <input type="checkbox"/> Sponsor.....\$1,000-\$5,000         |

\*For member's children under 18.

FOR.....

ADDRESS.....

FROM.....

ADDRESS.....



## WINDOWS . . .

### SYMBOLS OF CULTURE

For many, many centuries man existed in structures without windows.

We ask ourselves why? The answer is simple—there was no glass for windows.

It was not until about the 12th Century that glass was used in windows to any appreciable extent. Glass was a rare and costly material. In many countries today, window glass is still a luxury which only the rich can afford.

During the 18th Century windows came into their own. The large bay window was widely used in England. This provided a room with a view and reflected the high level of culture of the 18th century.

The glass window became the subject of literary and historical writers. Some called it a symbol of cultural development. They pointed out that the glass window made it possible to open mankind's dwellings and minds to the wonders and beauty of nature.

Just as the glass window signifies cultural progress so does the name Pittsburgh Plate Glass Company signify superior quality in glass for home glazing.



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## THE HEINZ MEMORIAL CHAPEL

By AGNES L. STARRETT



BEAUTIFUL Heinz Memorial Chapel is a nonsectarian center of spiritual life on the University of Pittsburgh campus. Its architecture, its stained-glass windows telling the story of human aspiration, its vaulted arches, its symbolic carvings in wood and stone, are the setting for weekly chapel and vesper services, weekly organ recitals, many weddings, and the quiet meditation of students, faculty, administrators, and visitors. To visit it each year, thousands come from all over this country and abroad.

Special services for day and evening students, faculty, administration, and the community are celebrated during the Christmas, Easter, and Thanksgiving seasons. Then the altar is banked with flowers and greenery; the rare African and French marble and lustrous hand-carved English oak reflect the gleam of lighted candles. And the amethyst-robed choir lifts every voice in the great traditional music of worship.

The architect of the Chapel was the late Charles Z. Klauder. The late Charles J. Connick designed and made the stained-glass windows. The wrought iron is the work of the late Samuel Yellin, artist and craftsman. The stone carving was done by Joseph Gattoni.

The Chapel is a gift to the University from Pittsburgh's Henry John Heinz

and his children. In his will the University received a bequest to erect a building in honor of his mother, Anna Margareta Heinz. Before anything was done toward this end, the children of H. J. Heinz—Howard Heinz, Irene Heinz Given, and Clifford S. Heinz—decided to add to the bequest and to build this Chapel in memory of both their father and their grandmother.

The Heinz Chapel is in itself a little world in which, it seems, saints and heroes live. In stone and in stained glass the romance, the courage, the victories of men through the ages speak to those who enter. The glory of the past is all around. It is encouragement for students and faculty and all who enter to share the life of that world.

The heroisms of American history, the songs and truths of the Bible, the great moral poetry of the English language, the wisdom of scholars and of prophets, the mystery of God are there. Youth speaks to youth. It speaks of adventure, romance, and courage, of triumph over Indians, wild beasts, and temptation.

The feeling grows that in these symbols of color, of form, and of abstract ideas is a message. What man has done man can do again. Florence Nightingale and St. Francis walked in the light. They cast aside greed and hate; they remembered courage, sacrifice, brotherly love; they built for the glory



GLOWING NATIVITY WINDOWS IN THE CHAPEL FORM A BACKGROUND FOR YOUNG CHORISTERS



of God. If men did that seven hundred years ago or one hundred years ago, they will do it again.

After communion like this with the symbols of eternal aspiration inside the Chapel, the student looks back at the outside of the building with fresh understanding. He sees in the Gothic architecture a harmony of intellect and of imagination which is the sum of whole and serene living. The shields of colleges, carved on spandrels and balustrades underneath the roof, he now sees as further symbols of man's eternal hope. The faith that built those colleges belongs here. Some of those schools, his own, too, were built in a hard world, fortresses in the midst of threatening savage life, treasure houses for human striving and wisdom.

The struggle and victories which made his heart beat faster inside the Chapel he now sees on the outside caught up in the flèche and flung in triumph against the sky. One last look through the opened doors at the dance of color and light in the deep greys and blacks of shadows—and his heart sings as the hearts of men before him have sung: "Lift up your heads, O ye gates; and be ye lift up, ye everlasting doors; and the King of glory shall come in."

Who can say how long this singing lasts or how far it carries him along his way? On a campus among buildings expressing in the strength and beauty of architecture and in classroom teaching much the same meaning, the Heinz Memorial Chapel is a great teaching force.

During the Christmas season the Chapel is particularly beautiful to the passer-by. Each evening at dusk great floodlights within the building bring to glowing life the stained-glass windows. The great Biblical and religious figures atop each



HEINZ MEMORIAL CHAPEL ON THE UNIVERSITY CAMPUS

window then seem to stand out in a third dimension of reality.

This year again at Christmas, when the great cross is lighted in the Cathedral of Learning, the windows of the Heinz Memorial Chapel will also shine, reminding men and women of the Life and the Light which endure from generation to generation.

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Mrs. Starrett is editor of the University of Pittsburgh Press, is the official editor for the University generally, and also an associate professor of English. The quarterly magazine *Pitt*, which she edits, has been awarded recognition by the American Institute of Graphic Arts.

Mrs. Starrett has been at the University since 1922 and is the author of *Through One Hundred and Fifty Years—The University of Pittsburgh*. She graduated from Pittsburgh Teachers Training School in 1918 and taught for four years in Pittsburgh public schools, at the same time earning her Bachelor's degree at the University, and, in 1924, her Master's degree.

## CLOSE TO THE ARTIST

By VIRGINIA LEWIS

*Fine Arts Department, University of Pittsburgh*



PITTSBURGH is fortunate in participating in one of the outstanding print shows of the country. For eight years an annual jury-selected exhibition to which any American artist may submit work has been held in the Library of Congress, made possible by a bequest of Joseph and Elizabeth Robins Pennell. This year as usual a group of these prints has been chosen for showing at the Institute and 114 of them are now on view in the balcony of the Hall of Sculpture.

It has been customary at the Institute to emphasize a comprehensive survey in its annual painting exhibitions. In the same way this print show is inclusive of the great variety of work being done today in the graphic arts. There are artists included from everywhere in America, and documentary prints recording in fact and spirit their particular locale, from the north to the south, and the east to the west. Because of the fame of the Internationals one wishes that this phase of expression might be extended to include work from other countries, particularly in so far as the exhibitions have been scheduled concurrently and offer unusual opportunities for comparisons.

The print is an effective medium for the portrayal of new movements, but subjects and styles of days gone by continue to be popular. There are many instances here of both traditional iconographical themes and of primitive symbolism which are given a contemporary significance by a modern treatment of light, interpenetrating planes, variety in texture, juxtaposition and interweaving of shapes and forms. Thus a mood has been created having a universality of message.

A theme that has interested man for many hundreds of years

and has always been a favorite one in prints is that of the relationship of the past and present, life and death. This we see in the present exhibition in Adolf Dehn's *Yesterday and Tomorrow*. One is reminded of the New England gravestones of our seventeenth-century forefathers on which this idea of the flight of time was so often somewhat crudely carved. But then, the distortion was owing to a certain naivete and a lack of skill. Dehn's lithograph here is sophisticated caricature with modern and dramatic interest in chiaroscuro and an extreme sensitivity for the medium of lithography.

Also in the realm of caricature which in style could only be of the twentieth century is Alfred Bendiner's *The Afternoon of a Middle-aged Faun*. This is a more facetious comment on the passing of time but not without a certain pathos, and is, if not intended, faintly reminiscent of the fifteenth-century theme popular among printmakers on the satire of the power of women. The faun does look as if someone had got the best of him.

Benton Spruance's color lithograph "*Of Course He Will Come*" shows a momentary interest in time. This is one of a series he



BIRD OF PREY  
Wood Engraving by RODERICK MEAD





ST. ANTHONY  
Engraving by WILLIAM McCLOY  
Lent by The Library of Congress

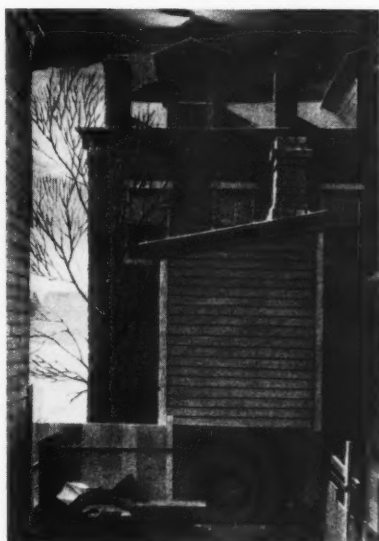
has been working on recently inspired by the opening lines of Ecclesiastes. An understanding of the tenseness of mental strain is revealed in the wistful expression of the girl, ideal in her sweetness against a background that is somewhat distorted. This modern division of space is an effective means for emphasizing the psychological force of uncertainty. As always in Spruance's work there is subtlety of color, exquisite texture, and sensitivity to the medium. Another lithograph in the exhibition by H. Louis Freund is entitled *Ecclesiastes*. In this the artist has movingly interpreted the theme with dramatic lighting and pattern to represent the uncertain groping of the world today.

Ralph Fabri's *Lion Hunt* suggests the struggle with a unicorn, a symbolic motif that has ever been a part of the language of art. In this lithograph of a crayonlike technique Fabri has used his subject to form a swirling design almost Celtic in the fusing of the animal forms themselves with the pattern of his composition.

The preoccupation with primitive symbolism in recent modern art is a matter of great interest. The tendency today toward regimentation whether it be political or, as here in America, that largely pro-

voked by the industrialization and standardization of the machine, has perhaps led us to a return of a group consciousness. This collective feeling has been pointed out to have a certain parallel with the pattern of primitive societies. While this is undoubtedly but a superficial explanation, it may help to indicate why the spell of the primitive has become so pronounced.

One of the outstanding examples of the symbolism of primitive man is the color etching and engraving *Homo Taurus* by John L. Ihle, in the tradition of the Studio 17. This is of course a modern variation of the Minotaur, who might be thought of as being fed with the youth of the world. Projecting planes of a small sphere represent the cosmic world, but part of the composition is somewhat labyrinthine in its obscurity of form. There seems to be no Ariadne or Theseus to overcome destroying forces. Or perhaps the Minotaur here stands in judgment as he does in Fabrizio Clerici's painting *The Minotaur Denouncing His Mother Publicly* in the concurrent exhibition of painting. Picasso has called attention to this theme in recent times with his famous etching *Minotaur-romachia*. Myths are often a means of in-



SPRING FEVER  
Lithograph by WILLIAM CHARLES LIBBY  
Lent by The Library of Congress

terpreting the human mind. They are literary symbols that have always played a considerable part in the communication of ideas through visual expression.

A much more obvious connection between man and bull is Misch Kohn's *Bullfight*, partly representational but characterized by great force through an abstraction of anatomy and a concentration upon the three-dimensional qualities of the wood-engraving line. It is especially interesting in this experimentation with the physical aspect of line in wood engraving that is by now so familiar to us in copperplate work. In this modern vision Letterio Calapai, among several others, is worthy of mention with his *Jehovah's Eye*, an engraving and soft ground etching. The combination of feathery lines, sharply defined ones, white lines in relief, the intriguing design with a repetition of the triangle in perspective toward the horizon and, again, indicating the direction of the eye's vision, these together send out perhaps a note of hope, or perhaps of futility in a troubled world over which the all-seeing eye is keeping watch. Or again the meaning may be irrelevant in the artist's concern with the mechanism of the eye. The netlike background indicates an interest in texture that is a basic problem with the movement fostered by Studio 17. Historical processes of intaglio printing such as line engraving, etching, aquatint, and the paste, flock, and tinsel prints have been revived by these men with a twentieth-century scientific approach to exploring thoroughly possibilities of line and texture for the expression of contemporary thought. There are other outstanding examples of this tradition in the exhibition, such as *Angels Wrestling* by Stanley William Hayter, whose Celtic ancestry is reflected in the intricate rhythm of his line. Especially worthy is the cubistic-expressionistic *Self-Portrait* by Mauricio Lasansky, from the Argentine, who has been in-



BUDAPEST STRING QUARTET  
Etching by IRWIN D. HOFFMAN

spiring the Middle West in recent years with the "new vision."

Directly opposing in technical approach is William McCloy's *St. Anthony*, a line engraving entirely in the fifteenth-century tradition even to the monogram on the stone in the foreground. But the pre-historiclike temptations besetting the saint are so horribly surrealist in their psychological implications that they could never be confused with the almost tender by comparison demons such as Martin Schongauer, or even later Jacques Callot have created. The *St. Anthony* has been a universal theme representing the struggle of man, the power of good over evil.

Roderick Mead in his wood engraving *Bird of Prey*, while observing the fine English tradition in this medium has gained dynamic power through his association with the Studio 17 group. It too depicts the theme of life and death, emphasizing brutality as part of the pessimism so characteristic of much contemporary art.

Religion has always been a vital force in the society of man but today it does not seem very powerful. Certainly there is little of it reflected here. Most impressive of the religious prints is Lewis Daniel's mezzotint, the fifth of a series in which he has conceived an interpretation of the theme of the Book of Job. In this particular illustration, "Behold I go forward but He is not above," the artist's serious-

ness of purpose is strongly felt by an effective use of chiaroscuro and some emphasis upon projecting planes.

There are of course more objective prints in the exhibition. The idea of music has been variously interpreted. The Budapest String Quartet, so close to the hearts of Pittsburghers, has been somewhat blandly and realistically portrayed in an etching by Irwin D. Hoffman. The glamour of the excited conductor has been dramatized by Mervin Jules in his lithograph *Crescendo*. This is a theme that he has colorfully ex-

cuted in oil. Several prints of the exhibition suggest a painterly quality in which one of the most delightful effects of lithography is brought out. One might mention especially Francis Chapin's *Martha's Vineyard Colt*, William Charles Libby's *Spring Fever*, and Stephen Csoka's *Approaching Storm*.

While the print exhibition lacks the spectacular grandeur of the International, one feels, in looking at this work, closer to the artist in the intimacy of the medium and possibly through the greater ease of possession.

## Book Notes and Quotes

Compiled by ANN MACPHERSON

Lordlings, listen to our lay—  
We have come from far away  
To seek Christmas;  
In this mansion we are told  
He His yearly feast doth hold:  
'Tis today!  
May Joy come from God above  
To all those who Christmas love.  
—An old carol from  
*Away in a Manger*  
By JEAN THORBURN



Within a month literature lost two of its most colorful exponents; Edna St. Vincent Millay is dead at fifty-eight, and George Bernard Shaw, at ninety-four.

The talented lyric poet of Greenwich Village was the idol of the Twenties with her "live dangerously" philosophy. Her later years showed an increasing concern with social problems.

Yet here you come and go  
Unmolested, and shoot off your mouth, and publish  
the Daily Worker, and insist  
On your rights under a liberal Constitution!  
Tell me, would you care  
To try publishing in Moscow today a paper called  
the Daily Capitalist?  
Or preach the blessings of the profit-system to  
a crowd in the Red Square?

In order to build new factories, in order even  
To putty new window-panes into cobwebbed  
factory-windows . . . to plant the acres  
that may be scorched or drowned  
before the season of the harvest. . .  
You must have capital.

—EDNA ST. VINCENT MILLAY  
*Conversation At Midnight* (1937)

G.B.S. is to some extent likely to be the victim of his own brilliant epigrams and denunciations of weaklings, women, education, church, war, politics, and practically everything except the Life Force or Creative Evolution. Torn from context of his *Revolutionist's Handbook*, from *Pygmalion*, *Man and Superman*, or *Back to Methuselah*, they are rather appalling, but in the prefaces he explains himself.

But my conscience is the genuine pulpit article: it annoys me to see people comfortable when they ought to be uncomfortable; and I insist on making them think in order to bring them to a conviction of sin.

—Epistle Dedicatory to  
*Man and Superman*

It is so intensely and deliberately didactic, and its subject is so dry, that I delight in throwing it at the heads of the wisecracks who repeat the parrot cry that art should never be didactic. It goes to prove my contention that art should never be anything else.

—Preface, *Pygmalion*



I am willing to take life as a game of chess in which the first rules are not open to discussion. No one asks why the knight is allowed his eccentric hop, why the castle may only go straight, and the bishop obliquely. These things are to be accepted, and with these rules the game must be played; it is foolish to complain of them.

—WILLIAM SOMERSET MAUGHAM  
*A Writer's Notebook*



When I play with my cat, who knows whether I do not make her more sport than she makes me? We mutually divert one another with our monkey-tricks.

—MONTAIGNE  
*Essays*

## CARNEGIE AND THE FUTURE

*Excerpts from the recent inaugural address of the president of Carnegie Tech*

By J. C. WARNER



ONE can look into the future only in terms of the past and the present, and with a knowledge of the aims and aspirations which we hold for Carnegie Tech and for higher education in America. Hence I would like to address my remarks toward two aspects of Carnegie Tech's future: one aspect is common to all good private colleges and universities; the other pertains to the specific aims and problems of Carnegie Tech.

Concerning the first of these aspects, privately controlled colleges and universities such as Carnegie Tech began higher education in America and also first recognized the responsibilities of the university as a center of learning where new knowledge and new ideas are won through research and other scholarly and creative pursuits. The private colleges and universities have been the leaders in the evolution of and the preservation of academic freedom. Furthermore, they have been in position to experiment freely with new ideas in education—whether it be new methods of instruction or the opening up of new areas of instruction and research. The great state and publicly controlled universities have been patterned after our great private universities, and I believe it is safe to say that the state-supported universities, which now play such an important role in higher education in America, could not have developed with so great a regard for academic freedom and as centers of learning except for the example set by the independent universities and the competition which the latter provide.

Those who aspire to become dictators and thus to control the destinies of nations have found that their battle is more than half won if they can control education,

as state education always can be controlled. Thus everyone who is interested in seeing America survive and prosper as a free society must be interested in the survival and prosperity of our good independent colleges and universities.

One hears much these days about a crisis in private institutions for higher education—a crisis arising out of the need for substantial funds to cover the decreased rate of return on endowments and a drastic inflation of the price level. However, this need for funds is not new. Most private colleges and universities were born in struggle and, except possibly for brief periods in their lives, have constantly needed to seek additions to their resources.

Let me now turn to the second aspect of Carnegie Tech's future—its aspirations and problems. We are celebrating Carnegie Tech's fifty years of service to the community and the nation. During the last quarter of a century I have served Carnegie Tech, and thus my service has been throughout Dr. Robert E. Doherty's administration. He was a great president; he provided outstanding educational leadership; he recognized Carnegie Tech's responsibility as a center of learning; and he gave the school prudent management. Under his guidance we have brought to Carnegie Tech a distinguished faculty of teachers and scholars; we have found out how to provide an unusually effective type of professional education; and we have evolved well-considered, well-understood policies which are useful in solving most problems that confront the school from time to time. As a member of the faculty, and more recently as a member of the administration, I had the opportunity of taking part in the deliberations which led to formulating policy, setting educational objectives,

and evolving plans to implement our ideas. Our course is well charted, and we are—to borrow a phrase from one of my colleagues—on the cutting edge of educational progress and of scholarly and creative achievement.

For the near future, it is my opinion that Carnegie Tech needs no re-orientation and it needs no new educational philosophy. We need a period for consolidating our gains and for bringing our plans to fruition. In bringing our plans to fruition, we have two main tasks: (1) Completing the fourth step in our program for professional education which Dr. Doherty has outlined—making the education of the student a reality in which he actually accomplishes for himself our stated objectives; (2) Bringing into full use our improved facilities and the abilities of our faculty for scholarly work and for the advanced training of able men and women in our graduate schools.

Carnegie Tech, like other good private colleges and universities, needs additional financial support. Therefore, let me say a few things about our financial situation.

Before World War II we confidently thought that the successful conclusion of the 1946 campaign would solve Carnegie Tech's financial problems for some time. It would have—if the price level had remained prewar. But we have experienced a real inflation and our problem has begun over again, and the end does not seem to be in sight.

Thus Carnegie Tech, in spite of substantial resources, must ask for help—not to provide for expansion nor to enter into new fields of activity, but to hold the gains we have made during the last fifteen years and to continue to make progress in the quality of everything we do. Since no increase in size is sought, the additional help we need is not large compared to the resources we already possess, but it is critical in terms of keeping our distinguished faculty, of going ahead with a program of professional education that we believe is essential to the survival and prosperity of America as a free society, and of the further development of Carnegie Tech as a center of learning.

The great things that have been accomplished at Carnegie Tech in recent years as a consequence of gifts, grants, and from

alumni foundations, industrial companies, and individuals, demonstrate that additional help will be effectively used to achieve important and highly desirable goals.

If civilization is not set on fire by a third world war, Carnegie Tech's mission is clear:

1. We shall strive to attain our goals in professional education at both the undergraduate and graduate levels so that Carnegie graduates may make a maximum contribution in our complex society throughout their careers. We want them to be able to get sound and useful solutions to the problems which they encounter as professional people and as citizens.

2. We shall be interested in improving the quality and effectiveness of our education and its influence upon the development of professional education in America. We shall not be interested in a large student body.

3. We shall be interested in training our students to be ready for difficulty and to seek opportunity. We shall not be interested in training our students to seek "security."

4. We shall endeavor to discharge our obligations as a center of learning, keeping in mind that America, as one of the few great nations not devastated by the last war, has a special obligation in this regard. We shall expect to contribute to the cultural and esthetic heritage of future generations by creative artistic achievement. We shall expect to help in advancing the education of women for the home and for the professions. We shall expect through analysis and research to make some contributions toward the improvement of the managerial and administrative procedures of government and business. And we shall expect to do our share of the basic, fundamental research in science and engineering upon which the progress and vigorous development of American industry rests.

This, then, is the picture of Carnegie's future as far as it can now be discerned; these are the goals that we are seeking to achieve. The whole institution—trustees, faculty, and administration—is dedicated to these ends. If the world is spared from another war—and God grant that it may be—we will, with reasonable support, succeed in our high purpose.



## Swampscott Beach BY MAURICE PRENDERGAST

By JOHN O'CONNOR, JR.

Associate Director of Fine Arts at Carnegie Institute



MAURICE PRENDERGAST

THIS article has been planned to kill, as it were, two birds with one stone. In the first place it is to announce a gift to Carnegie Institute; in the second place to describe the gift—a painting now in the permanent collection; and in the third place, to paraphrase a famous line, "let us now praise a generous donor," which means killing as many as three birds with a single stone.

The painting is *Swampscott Beach* by Maurice B. Prendergast, which has been presented to Carnegie Institute by Edward Duff Balken. He is the generous donor referred to in the quotation given above. Mr. Balken is the honorary curator of prints and drawings in the Department of Fine Arts, he is a trustee of Carnegie Institute, and a member of its Fine Arts Committee. At one time or another, from 1915 until his retirement in 1935, he occupied in an acting capacity all the important positions in the Department, including that of Director of Fine Arts. He has made many gifts of prints, drawings, and books, and two other paintings to Carnegie Institute, all of which were presented anonymously. What Pittsburgh needs more than a five cent cigar which Vice President Thomas Marshall might have suggested for its well being, or a plan of development, or even new and diversified industries, is three or four men—and in this instance men embrace women—of the connoisseurship and impeccable taste of Edward Duff Balken who, while they will naturally be interested in the mechanical side of civilization, will be more in sympathy with and understanding of the humanities. This you will understand, dear reader, is a very personal estimate and intended tribute to one who has been my

colleague and preceptor for some thirty years. He is probably the only one who will not appreciate or approve this tribute, because he will feel that it is not deserved or should not be offered even if true.

Attention is directed to Mr. Balken, not only as the donor of the painting, but because he was one of the early collectors to appreciate Maurice Prendergast, just as he pioneered in assembling American Provincial paintings. All this is pertinent because of the position in art that has been attained by Maurice Prendergast. Walter Pach, in an article in the *Atlantic Monthly* for May 1950, wrote: "I would cite the examples of three of the best American artists, John S. Copley, Thomas Eakins, and Maurice Prendergast." Of the latter he said: "Only when we come to Maurice Prendergast do we find an American who, in his formative years in Paris, could enter the modern movement of his day, have a share in the splendid developments that succeeded those of the Impressionists, and then go on to produce an art as distinctively of his native soil as was the art of Copley and Eakins."

*Swampscott Beach* is water color and pastel on paper. It is 22 inches in width by 15½ inches high. It is signed at the lower right of center, "Prendergast." It is not dated, but authorities agree that it was done in 1915 or 1916. Mr. Balken purchased the painting in the latter year from the artist who, at the time, maintained a studio with his brother Charles at 50 South Washington Square, New York City. The picture hung in his home until he presented it to Carnegie Institute. Mr. Balken also owns an oil by the artist, *The Beach*, done in 1920, which was one of the notable canvases in the Prendergast Memorial Exhibition at the Whitney Museum of American Art in 1934.

The scene in the water color is a cove of Swampscott Beach, on the shore of which the summer folk are gathered for bathing, or simply lolling or gossiping along the beach. The foreground is crowded with





SWAMPSCOTT BEACH BY MAURICE PRENDERGAST

figures—women and children with dolls or toys, two nicely placed dogs, and rocks covered purposefully with moss which serves to introduce a green note, repeated in the trees on the shore. Most of the people are fully clothed, the women with long skirts, coats and hats, and some with parasols. The figures are arranged or posed to make a decorative pattern. Then comes the cove, with a few bathers in its turquoise waters. In the background are a sailboat and skiffs drawn up on the sand, a sea wall and houses that resemble the buildings of a small French village, and the sky, repeating the color of the water but interspersed with lambent clouds. The whole scene was evidently outlined by the artist with hasty, sketchy crayon lines and then filled in with brilliant greens, browns, red, orange, and turquoise. The water color is alive, not with the superabundance of life, but with the sheer joy of living, such as is to be found in some of the paintings of Renoir. In this picture the artist shows forth his flair for pageantry and his innate delight in decorative design. In it, as in so many of his paintings, his colors function organically with line in the development

of the design. In all this is evidence of the artist's interest in Persian painting. Each person or object in the picture becomes part of the pattern, carefully organized to the last detail and integrated into the organic whole. It has often been said that the artist's pictures become tapestrylike patterns of subtle, enchanting tones, as in *Swampscott Beach*. It is a delightful arabesque of color. In the oils and water colors of Maurice Prendergast, New England may be said to have bloomed again.

Maurice Brazil Prendergast was born in Boston in 1859. Apprenticed to a painter of show cards, he worked his way from washing brushes to lettering signs. In 1884 he and his brother Charles, a frame-maker of note, decided to go to Europe and study, working their way on a cattle boat. Maurice entered the life class at the Academie Julien and remained in Paris for three years, studying with Jean Paul Laurens and Blanc. He returned to the United States in 1889 and settled with his brother in Winchester, Massachusetts. His second sojourn in Europe took place during the years 1898 and 1899. It was on this trip that he became interested in Cézanne and

acquainted with Venetian art. In 1912 he joined his brother in Florence, but did little painting. He exhibited in the Armory Show in 1913, and it was this showing that was the foundation of his reputation. His last European trip was made in 1914, just before the outbreak of World War I. Though far removed from the "Ash Can School," as was Arthur B. Davies, he became a member of "The Eight." He was the first of the group to die, as Everett Shinn, who—praise the Lord—is still with us, will be the last. In 1914 the brothers moved to the aforementioned studio in Washington Square, where Maurice worked with ever increasing recognition until his death in 1924. It is said that in his latter days he had grown deaf, but he was never too deaf to hear good news from the art world. When he was told that some young painter had received a deserved recognition, he would always say "Well, there's still hope for the country!" And now, this is where we came in, boys, and if we succeed in developing other donors, other collectors, or other appreciators such as Edward Duff Balken, well, there's still hope for the country!

## PAINTINGS LOANED

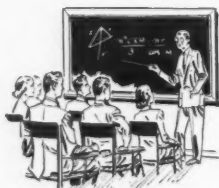
**E**IGHT paintings from the Permanent Collection have been lent during 1950 for exhibition outside of the Institute.

Georges Rouault's *The Old King* was one of the "one hundred masterpieces owned in the United States" exhibited for the Diamond Jubilee of the Philadelphia Museum of Art, and was reproduced in color as the frontispiece of the catalogue.

Edward Hopper's *Cape Cod Afternoon* was exhibited at the Boston Museum of Fine Arts and also at the Whitney Museum of American Art in New York City.

To the Dayton Art Institute went George Bellows' *Anne in White* and William Orpen's *Portrait of the Artist*.

The other paintings loaned this year are as follows: *The Great Bridge at Rouen* by Camille Pissarro, to Paul Rosenberg & Co., New York City; *Fruit on a Black Table* by Henry Lee McFee, to Scripps College, at Claremont, California; *Babette* by Eugene Speicher, to the Albright Art Gallery, in Buffalo; and *Post Office* by David Blythe, to the Historical Society of Western Pennsylvania, in Pittsburgh.



*The  
favorite nephew's  
schooling  
was forgotten*



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# THE GROWTH OF HUMAN CULTURE

## V. BRONZE AGE IN CHINA AND PERU



BY JAMES L. SWAUGER  
*Curator, Section of Man  
Carnegie Museum*

FAR to the east Chinese life was patterned, too, by the end of the Bronze Age. The story of the development of Chinese culture begins with Pekin Man, *Sinanthropus pekinensis*, an animal on the order of Java Ape Man but with a little higher cultural plane in that he may have known fire and had an extremely crude industry in stone. The story then proceeds to a culture whose remains are found in the vicinity of Ordos, a folk representing the Old Stone Age in China and a period of thousands of years whose dates are unassignable.

The next step in Chinese development was a long one, for there is in China no definable New Stone Age, but rather a Stone-Bronze Age. This culture, as embodied in Kansu and at Yang Shao and Sha Kuo T'un, was composed of a people using polished stone implements and copper simultaneously, learning the presence of and use of bronze via trade routes reaching far west to the central European plains. They were farmers, domesticators of pigs, growers of some textile plant from which cloth was made, users of the potter's wheel, dwellers in large peasant villages. It is during this Stone-Bronze Age that the Chinese dynasties preceding the Shang occur, and while they are considered legendary, so for years was the Shang, and perchance they, too, may have a basis in reality.

With the Shang dynasty, established about 1766 B.C., the true Bronze Age was in flower in China. The Shang farmed for a living. They grew wheat, millet, rice, mulberries, made and were addicted to the use of wine, and made a small beginning at the manufacture of silk although ordinarily they wore clothing made of simpler textiles and furs. They bred horses, oxen, sheep, chickens, dogs, and pigs. While

they hunted and fished with bows and arrows and spears, traps and snares, nets and lines, the products of hunting and fishing were not important to their economy. Good-sized, walled villages were built, and the common type of Chinese house took form, rectangular in outline, constructed of poles and matting and mud.

The structure of society seems to have been threefold and to correspond to that developed in the Fertile Crescent. An aristocratic governing class supported a monarch, who ruled over a group of artisans and a large farming population. The family structure occurring at present in China assumed form, and a man's family included all those who bore his family name, both living and dead. Ancestor worship was well developed, as indicated by the elaborate funerary rites and tombs, and already the idea that the thing which was old and right for the ancestors was right for the living helped keep the established government in power.

The Shang established that reputation for fine craftsmanship which is Chinese. In wood they produced beautiful, intricate carving. Their pottery was excellent, the shapes good, the carved and impressed designs dignified and appropriate to clay.

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This concludes the series of articles on "The Growth of Human Culture," in which Mr. Swauger has discussed Fossil Men, Beginnings of Herding and Farming, Beginnings of City Life, and the Bronze Age in Switzerland, Tuscany, China, and Peru. The articles are based on talks given by Mr. Swauger to students in design at Carnegie Tech, to aid them in a problem in mural-painting.

Mr. Swauger graduated from the University of Pittsburgh in 1941 and is now working on his doctorate. He lectures on physical anthropology at both Pitt and Duquesne University. For the past fifteen years he has been a member of the staff of Carnegie Museum, with the exception of four years of Army service.

They developed the distinctive Chinese *li* tripod, a pot whose bulging, hollow legs were designed to bring food closer to a cooking fire. In marble they carved great figures of birds and beasts and mythological figures, a technique that disappeared with the Shang dynasty—and this is strange, for their other cultural attributes carried on to succeeding periods. Their bronze work was especially good. The metal was used to make vessels of various uses, vessels whose shapes, proportions, and ornament resembled the Shang pottery and passed on into Chinese artistic tradition the dignity of the early clay work; to make chariot fittings, for they rode and fought in chariots; to make the distinctively long-necked, slender Chinese arrowheads; to make tools; and to make personal ornaments. Shang bronzes with their perfect casting, boldly handled ornamentation, and grace rank with the best bronze work ever done.

During Shang days, a pictographic writing was invented. Scholars have determined that this writing is the direct precursor of modern Chinese, and from study of the Shang records they have discovered an immense amount of factual material concerning life in Shang times.

About 1122 B.C. the Shang dynasty was overthrown by the Chou, which remained in power until 255 B.C. Iron came into China during Chou times but its general use was not important until early Han days, so the entire Chou period is considered Bronze Age.

The Chou carried on the traditions established by the Shang. Agriculture remained the mainstay of life, the same animals were kept, hunting and fishing became more and more for sport, rather than for livelihood. Houses became larger and more elaborate but retained the same shapes. The aristocratic group solidified into a feudal form; the artisan class was larger, but its work declined from that of Shang days, with more emphasis on decoration of objects than on the creation of free forms; and still there was the great mass of peasantry tilling the fields. Ancestor worship and family solidarity increased, if anything, in their power over daily living. Those of the wealthier groups "did themselves very well." They lived in pleasant homes; held picnics, banquets, archery contests; had

pets, jesters, music; and evidently got drunk often.

The writing system was diversified over the Shang original, the vocabulary expanded, the symbols simplified. Much writing was done, the records for both governmental and private affairs becoming so numerous that an army of clerks and



CHINESE BRONZE RITUAL VESSEL (7" high)  
Shang Dynasty, 1766-1122 B.C.  
Collection of Walter Read Hovey

officials grew to handle them. These people were almost a separate class although considered of the governmental group. The clerkly ranks were drawn from all classes of the populace, any person who could read and write and pass the written examinations being eligible for public office. Thus was early established the system for drawing into the Chinese civil service those who could pass examinations on such matters as calligraphy and the Chinese classics. The procedure seems to have worked about as well as any other yet devised.

The outstanding figure of Chou times was Confucius, whose traditional dates are 551-479 B.C. His earthy philosophy expounded the doctrine that what China needed was good government which could be assured only by a return to the methods of the sage-rulers of antiquity, the maintenance of proper ceremonies in government, religion, and daily life, and the setting of good examples by the ruling class. He founded not a religion but a plan for living that took advantage of the Chinese reverence for the past to assure good living in the present. With him to formulate the philosophy, Bronze Age China defined the pattern of life as followed in China until almost the present day.

The last civilization to be considered, that of the Incas of Peru, had just entered the Bronze Age when it was destroyed by men of the Iron Age. These American Indians developed the use of bronze independently and might have given birth to a civilization based on the use of metal tools with different orientation than our own. Certainly, when Pizarro erased the Inca empire, he prevented the growth of what would have been a most interesting culture.

The Incas were a ruling class who rose to power over their neighbors by means of a ruthless military and governmental machine which expanded their power over a linear area some twenty-two hundred miles in length. They ruled from Ecuador to the Maule River in Chile, from the Pacific to the Andes peaks in Bolivia.

While the beginning of the growth of Inca power is not dated with any sureness, the Incas were firmly established by 1400 A.D. with no people in their immediate vicinity who could by any means unseat them. Contrary to the practice of most ruling classes, the Incas took upon themselves responsibility for the welfare of the land and the subject peoples. While the Inca, or chief ruler was holy in himself, the representative on earth of the Sun, the

and engineers designed and constructed the aqueducts and ditches and terraces that made the land fruitful, the roads that enabled him to send his armies swiftly on their way but also acted as magnificent arteries of trade. Although hardly living an idyllic existence—working in theory only for the Inca, liable for labor duty at any time, fixed in occupation without any choice allowable—the Peruvian peasant was fortunate beyond any peasant of the old world in that the government considered itself in charge of his well-being. He might not rise to a position of wealth or governmental or priestly prominence, but at least he would not starve nor be without clothing and shelter.

The Inca economy was practically agricultural even though hunting and the herding of llamas, alpacas, and vicuñas bulked large in the lives of the people. Most things eaten, however, were vegetables, agave, alligator pear, kidney beans, squash, maize, potatoes, sweet potatoes, tomatoes, mandioca. These vegetables were supplemented with fish, deer, llama, tapir, ducks, geese, and peccary. Tobacco, cotton, and quinine were cultivated. The use of fertilizer was understood, manure, guano, and a small, sardinelike fish being used to increase the fertility of the soil.

Men wore ponchos, breechclouts, broad hats; women, blanket dresses and mantles. Sandals were worn, and a sort of boot. These articles were usually made of textiles. Houses ordinarily were made up of one rectangular room, with hanging mats sometimes for compartments. Larger homes and great temples were built, simple in plan, solid, symmetrical. No matter how magnificent the walls of the buildings, however—and the Incas are noted for their ability to dress and fit great stones—the roofs were always thatched, so while the Inca's wall was better, he was even with the poorest of his subjects in the matter of roofing.

The arts were well developed. The textiles were superb in both color and design. Pottery was built up by hand into fine shapes with good lines, excellent painting, and varied forms. Basketry work was done chiefly by plaiting, and basketry products were in wide use as containers and as mats. Feathers were woven into mats and blank-

(Turn to page 528)



PERUVIAN JUG  
of polychrome pottery  
(7" high)  
14th century A.D.  
Carnegie Museum

chief priest, the commander of the army, head of the civil service, the theoretical owner of every bit of land, product, and person in the empire, he was considered, and apparently considered himself, responsible for the well-being of the state as a whole.

His granaries were to a large extent storehouses for use in time of famine. His officers saw to the succor of the destitute, the aged, the incompatible. His architects



# MELLON INSTITUTE

By WILLIAM A. HAMOR



MELLON INSTITUTE, founded in 1913 by Andrew William Mellon and Richard Beatty Mellon, has for its purpose the advancement of knowledge by researches in the pure and applied natural sciences. The Institute's researches, which are long-range in character and scope, pertain to important problems of human welfare, mainly in the realms of health, chemistry, chemical physics, and technology. The Institute is a nonprofit, endowed corporation, chartered under the laws of the Commonwealth of Pennsylvania. The Board consists of six trustees—Paul Mellon, Richard K. Mellon, Alan M. Scaife, John G. Bowman, Edward R. Weidlein, and George W. Wyckoff—who elect their successors. Dr. Weidlein is director of the Institute and is aided by a staff of assistant directors: E. Ward Tillotson, William A. Hamor, Harry S. Coleman, George D. Beal, Leonard H. Cretcher, and George H. Young. This executive staff is charged with the operation of the Institute and with the administration of its various departments and its numerous pure and applied science research programs. The Institute has a co-operative alliance with the University of Pittsburgh, where its fellowship system was inceptioned in 1910.

The executive staff constantly studies research methods, developments, facilities, and trends. It considers problems, and delineates and manages acceptable investigational projects. It serves as a direct means of communication among the Insti-

tute's departments (pure chemistry, chemical physics, physical chemistry, analytical chemistry, and servicing) and the eighty different fellowships with reference to common interests and to joint action. Altogether there are 658 employees. Regular weekly sessions are supplemented by close contacts with departments and with fellowship donors and incumbents. The staff continuously explores possible directions of long-term changes in science, technology, and research. It keeps near to professional societies and to other research organizations, views investigational activities elsewhere, and maintains before it the concern of various governmental agencies in certain research programs. In initiating and carrying on researches in sectors of the pure and applied sciences there are the objectives of advancing required fundamental studies, for developing basic theory and standards, and of evolving novel processes and products and also new branches of manufacture. Around twelve hundred new or improved processes and products have come from the Institute's researches. Many contributions have been made to the literature, the



THE MAIN LOBBY





MELLON INSTITUTE ON FIFTH AVENUE, A BLOCK AWAY FROM CARNEGIE INSTITUTE

publications totalling 2,950, not including patents.

#### IMPROVING THE RESEARCH SPHERE

The responsibility of scientific research is to construct a systematic and useful body of fact and theory. In the Institute this duty is accelerated through teamwork in the interchange of underlying knowledge and ideas. The Institute is indeed a vehicle by which definite and valuable programs of research may be formulated and kept vital for scientists, not only within their provinces of specialization, but, with their collaboration, in interrelated subjects. More and more the Institute is being called upon to assist leaders in many phases of public life. Established knowledge of science and human relations can always render easier the solution of practical problems, particularly in the domain of health, involving sanitation, communal and industrial hygiene, and technologic economics. It is not hard to focus attention on crucial issues affecting personal well-being. It is much more difficult to contrive ways of attacking such problems, and especially to find scientists who possess the requisite skills and other qualities for carrying through the necessary researches. In all programs in the Institute the range of effort and support necessitates the full time of the researchists. The Institute

strives to stimulate interest in research, to uncover the wants of research scientists and to facilitate to best effect the many investigations carried on.

So as to prepare for the expansion of its activities and services and for new undertakings, the Institute has been strengthening as much as possible its research staff by acquiring specialists and also its facilities by providing more laboratories and by improving its equipment. During its past fiscal year the Institute expended \$3,524,454 for pure and applied research and \$1,187,709 on new construction work. The total construction cost for 1949 and 1950 amounted to \$1,835,173. An aim of the organization is the development of researchists for fertile careers there or elsewhere. As the years have passed, the compass and variety of the Institute's work and particularly the length and size of its research programs have been increased, encouraging the building up of personnel through long-continued judicious selection. The professional and social structure of the whole Institute group—the executive, research, and servicing staffs—is given substance by the Robert Kennedy Duncan Club, the organization of the members that keeps alive the name and spirit of the first director. A strong research tradition is thus fostered that is integral to the fulfillment of the Institute's functions.

#### LINKING RESEARCH TO THE NEEDS OF TECHNOLOGY

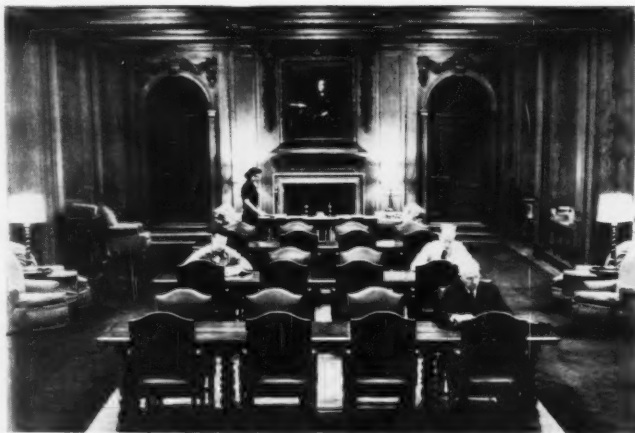
Acting for industry by annual contracts with companies, the Institute promotes applied research in important technologic areas through grants to scientists by its fellowship system. The 80 fellowships in operation employ 460 scientists, senior and junior. Fellowships are awarded on the basis of competence, are supported at operating cost by funds provided by company donors. In the Institute almost every fellowship has convergences with various cognate fields and with problems in the application of research as a force for the help of mankind. The Institute has had leadership in synthesizing this force by reliable methods, by the advancement of scholarly inquiry, and by the encouragement of adequate training for research. The larger fellowships in particular give special experience to young scientists of promise by their work under specialists. While the researches of fellowships are of postdoctoral status, junior members of fellowship staffs may enjoy the opportunities of graduate study in the University of Pittsburgh, where 163 past and present members of the Institute have received the degree of master (78) or of doctor (85). In addition to improving methods, techniques, and facilities, research management is expected to contribute to increasing the flow of desirable scientific personnel into investigational occupations. The Institute has an energetic part in joint planning among professional societies, universities, research institutions and industries for the increment and betterment of research men and groups.

The industrial fellowship arrangement is as follows: A manufacturer seeking to investigate a major problem, or hoping for general benefit from a research program,

and if his proposal is acceptable, donates money for a temporary fellowship in the Institute. A formal fellowship agreement is made between the Institute and the donor setting forth the purpose and the payments. The fellow selected must be acceptable both to the donor and the Institute. More than half of the fellowships are not individual but are multiple, having staffs of scientists chosen similarly. Only one research is conducted on a particular subject at any one time; hence there is no conflict among the fellowships in operation and instead co-operation can be easily nurtured. The donor has control over the research results of the fellowship it supports and over their patenting and publication. The fellows often find later employment with their donors. The Institute defrays the overhead expenses not chargeable to a particular donor and the cost of equipment of general long-term use. Thus the Institute provides facilities for comprehensive researches which if conducted individually would be much more costly. Besides, the physical separation of the Institute and its laboratories from production plants is generally regarded as a great advantage to broad company research.

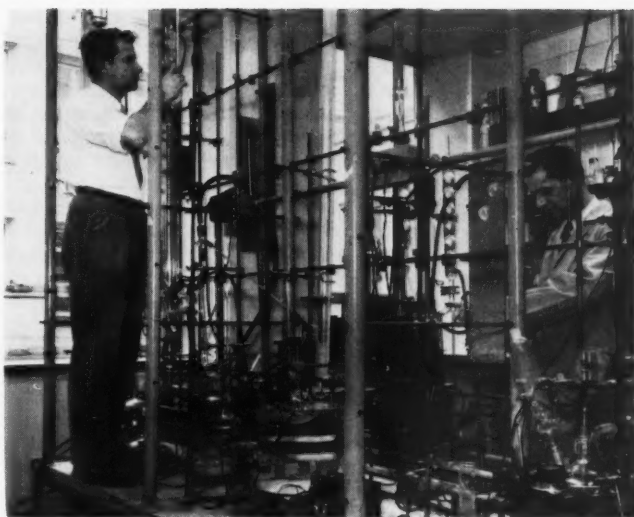
#### SOME RESEARCH ACCOMPLISHMENTS

Among the recent achievements in fellowship researches are improvements in refractories, porcelain enamels, optical glass, and building materials; and important additions to the knowledge of



READING ROOM OF THE LIBRARY AT MELLON INSTITUTE

steel-making, steel construction, welding, and metalworking. The Institute is active in assisting the by-product coke industry to map its future and in investigating recovery processes and methods for utilizing coal chemicals. Its work in petroleum chemistry and technology is also recognized internationally as authoritative. On other fellowships new chemicals and processes are being evolved for industry, new foods are being studied, sugar refining is being bettered, novel products from corn and soybeans are being examined for possible commercial applications, textiles and paper are getting improvement, wood is being converted into new forms, and air- and stream-pollution control is under wide research. A large fellowship has a program on the properties of synthetic rubber, and gratifying progress has been recorded. New kinds of plastics, novel organic protective coatings, new types of



SYNTHESIZING NEW CHEMICALS FROM COAL-TAR DERIVATIVES

floor and wall coverings, new uses for silicones, better life preservers and orthopedic appliances, new insecticides, and new medicinal agents are coming from still other fellowships.

Industrial Hygiene Foundation, a non-profit national association for advancing health in technology, operates quite productively under the Institute's auspices. The Institute, recognizing fully the need of fundamental scientific research as a background and source of stimulus for applied science research, also supports disinterested investigations not suggested by industry but planned within the organization. The Institute's fruitful Department of Research in Pure Chemistry studies largely chemotherapeutic problems, such as the synthesis of new drugs. And its alert Departments of Research in Chemical Physics and in Physical Chemistry apply the methods and techniques of their fields in aid to fellowships and in fundamental studies of their own choice. The results of these investigations are made available to the professions and the public. Brilliance of technique, as first brought out in analytical chemistry, is a practical goal of the research scientist. High skill in that elaborate thinking and doing has been very much facilitated by developments in physical chemistry and chemical physics

William A. Hamor, assistant director of Mellon Institute since 1916, has been named by the Pittsburgh Section of the American Chemical Society to receive its Pittsburgh Award for the year 1950. The award, a bronze plaque which is granted annually for outstanding service to chemistry, will be presented to Dr. Hamor on December 21.

In a long and productive career, Dr. Hamor has achieved prominence for his noteworthy accomplishments in research management, and for his authorship and editorship of numerous scientific publications. A graduate of University of Pittsburgh, he has received honorary doctorates from the University, from Grove City College, University of Louisville, and University of Miami. Since 1947 Dr. Hamor has served as editor of chemical monographs for the American Chemical Society. He is a member of various other technical societies and has served on several important governmental agencies, including the Scientific Personnel Committee of the U. S. Atomic Energy Commission and the Scientific Manpower Branch of the War Department, General Staff. He is also a member of the Research Advisory Council of the Industrial Hygiene Foundation of America.

and their instrumentation.

It was demonstrated in World War II that a nation is no stronger than its science and industry, that science and industry are no stronger than their manpower. The Institute is convinced that laboratories, plants, processes, and machines of the future will be designed and operated with more and more appreciation of the essentiality of the human factor. Activating the community to a better appreciation of science and its human relations, pointing out to industry wherein scientists can be of help and thereby winning nourishment for research, prosecuting investigations directed to public needs, and turning out skillful researchers, Mellon Institute has a thirty-eight-year history of pioneering service in ministering through scientific research to the well-being of mankind.

### BRONZE AGE

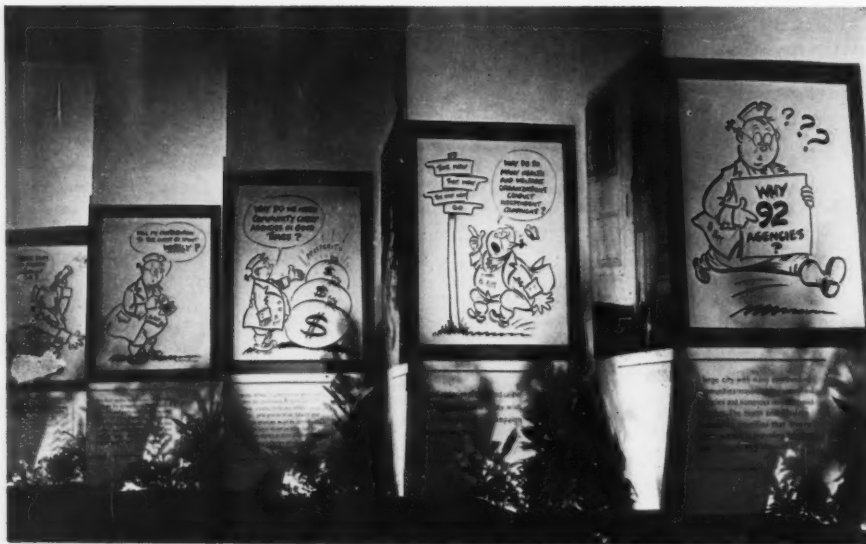
*(Continued from page 523)*

ets in excellent designs and beautiful effects.

In metal the Incas knew the use of casting, beating, soldering, plating, gilding, and alloying. Gold and silver were used in great quantities; tin was imported from Bolivia. Metal was smelted in cylindrical, potlike clay furnaces whose flames were fanned by blowing through copper tubes

or by the winds of high altitudes; the furnaces were efficient since most of the ores were in an almost pure state. The alloy of tin and copper which makes bronze was understood, and bronze was being used in rather large quantity when Pizarro burst into the empire. Bronze is probably the material which gave rise to the belief that the Incas could harden tin.

Except in its development of such vegetables as potatoes, the Inca civilization had little effect on our own and so, perhaps, has little place in any survey of the ancient civilizations which contributed to our own. But if there is a lesson in any study of ancient cultures, it is that no single group has had a monopoly on ingenuity or was so handicapped by nature that it could not, in time, develop workable, worthwhile cultures without contact with that particular group which gave so much to us. Men everywhere have fought, with varying successes and with varying methods, to emerge from the status of the brute, with his direct dependence on nature, to the status of the civilized man, with his partial control of nature. Inca or Sumerian, Chinese or Egyptian, man has indicated that he is not content with things as they are but has always tried to improve them. And doubtless he always will.



CY HUNGERFORD'S SHARE IN THE COMMUNITY CHEST EXHIBIT AT THE MUSEUM

## THE MUSEUM AFIELD

CONSTANT scientific field research and exploration are essential if a modern museum of natural history hopes to maintain its place as a progressive repository and authority for biological material. Carnegie Museum has been universally renowned for its field research and studies. The following is a brief summary of the activities of its various sections this past summer.

Arthur C. Twomey, curator of birds, with his assistant, Roland W. Hawkins, worked in Honduras from June through August. His field investigations continued previous work conducted by the Museum and sponsored by Matthew T. Mellon. This year's expedition concentrated its efforts along the north coastal rain forests, inland to the great inner montane valleys, and in the west as far as Lake Yahoa. In contrast to previous seasons, when very large collections were made, this year's work was selective in nature and as a result devoted much more time to observation and critical collecting. The scientific importance of the specimens cannot be completely evaluated until they have been critically studied. Many new races of birds have already been recognized, some even in the field because of their color patterns.

The curator emeritus of birds, W. E. Clyde Todd, represented the Museum at the Tenth International Ornithological Congress at Upsala, Sweden, June 10-17. This Congress brought together almost four hundred ornithologists from many different countries; thirty came from the United States, and most of the principal museums and scientific institutions sent delegates. The program of scientific papers covered a wide field, and Mr. Todd presented part of his film on Ungava and the Barren Grounds. Field excursions were run to a coniferous forest region and a fen district north of Upsala, also to the country residence of Linnaeus.

Mr. Todd writes of field work following the Upsala convention: "After the Congress closed, about forty of its members participated in an excursion to Abisko in Swedish Lapland, north of the Arctic Circle, the train trip requiring a day and a

night. I was surprised to find there a good stand of small birch trees and a few pines, the weather unexpectedly warm. To find truly arctic conditions one had to ascend the mountains beyond timberline. Our guides took us to several different areas in search of particular species. With a few exceptions, birds were scarce. The birds were there, it is true, but widely scattered, and to find them one had to cover a lot of ground. On the last trip that I undertook, our party tramped uphill over rocky and soft ground for 15 kilometers (9 to 10 miles) and returned by the same route, merely for the sake of seeing a pair each of Snow Bunting and Lapland Longspur. We had to wade several swollen mountain torrents and cross snowfields. One day several of us went by rail to Narvik on the Norwegian coast. Here were good-sized trees, flourishing gardens, and a considerable town. The weather was oppressively hot. After leaving Abisko I was privileged to spend a week at Stockholm, where, through the courtesy of Count Nils Gyldenstolpe, I was able to study birds in the collection under his care in the Royal Natural History Museum. This includes species common to Europe and North America, and also South American material with an immense collection from Bolivia. Before going to Upsala I had spent five days in Copenhagen with Finn Salomonsen in the Museum there, where I worked on the best collection of Greenland birds in existence."

The only official collecting trip made by a member of the section of Insects and Spiders was a two-week expedition by John Bauer to the Amherst district in Virginia for the purpose of obtaining the marbled underwing moth, *Catocala marmorata*. Although the weather was unfavorable, Mr. Bauer was successful in obtaining fourteen of them along with several thousand other moths. Curator Walter R. Swadner obtained some very rare moths while on vacation.

The associate curator of invertebrates, Gordon K. MacMillan, spent six weeks, beginning July 17, on a collecting trip to Cape Breton, Nova Scotia. The first two weeks passed visiting natural history mu-



seums in Toronto, Ottawa, Montreal, and Quebec City, to consult their collections of mollusca. On the return trip, a stop was made at the Nova Scotia Provincial Museum in Halifax. Sydney, Cape Breton County, was made the first headquarters for collecting, from which four trips were made into the field. These localities, except one, were situated in mixed conifer and deciduous forests along streams or ponds. The second headquarters was established at Baddeck, Victoria County, from which the remaining seven localities were visited, including one at Whycocomagh in Inverness County. The majority of the shells collected were of minute forms, except for one large species which was found in localities close to human habitations or in places where human influences had been evident. However, at Whycocomagh a species of terrestrial snail was collected, its first record north of the Strait of Canso.

Work on the Pennsylvania Mammal Survey under direction of J. Kenneth Douth has been moving steadily ahead, with four parties in the field during the summer and well over a thousand specimens of small mammals shipped to the mammal laboratory. Both Caroline A. Heppenstall, assistant curator, and Dr. Douth visited the field parties to supervise and inspect.

A. C. Lloyd spent a large part of the season at the sinkholes near New Paris, Pennsylvania, from which many specimens of interest were collected.

James L. Swauger, curator of man, reports that the archeological field party under direction of William J. Mayer-Oakes spent a total of sixty-two days in the field directly engaged in field survey work and perhaps ten other days in short trips to view Indian collections in this vicinity and attending professional meetings. Work was done in Canada, Ohio, Kentucky, West Virginia, Maryland, and Pennsylvania. Mr. Mayer-Oakes' report appeared in some detail in *CARNEGIE MAGAZINE* last month. The important results of this summer's work are these: (1) The establishing of the presence in the project's limits of the known major archeological horizons of the eastern United States; (2) The finding of several groups of associations that do not fit into the accepted horizons; (3) The contacting of numerous persons interested in archeology in this region; (4) The initiat-

ing of much public interest in assisting the project; (5) The training of three useful field workers.

Deirdre Watkins, of the Section of Man, attended the third annual Seminars on American Culture arranged by the New York State Historical Association in Cooperstown, New York, July 2-16. The sessions were held in Fenimore House and the nearby Farmers Museum, and a large, informed faculty presented extremely interesting material. Mrs. Watkins chose two from the seminars offered, entitled "Early American Crafts" and "Folklore of the Northeast." In the first, she took part in the preparation, dyeing, and spinning of flax and wool, in warping a loom, as well as learned about lumbering tools and processes, the making of splint and corn brooms, early American cooking, early lighting devices, and blacksmithing. Discussions under the second topic included geography, early painters, patriotic symbols, folkways in domestic life, home decoration, rural-life customs, "Death and Funerals," American wood carving, "Songs, Ballads and Broad-sides," trends in the preservation of folk culture, "Folklore by and about Children," "Sea, Ships, and Sailors," patterns, and Pennsylvania Dutch.

The collecting season for the Section of Plants, beginning in April and continuing until the middle of October, added approximately 6,550 specimens to the herbarium—5,190 from Pennsylvania and 1,360 from other states or countries. Curator L. K. Henry, accompanied at times by W. E. Buker and F. H. Beer, obtained approximately 4,000 of these in Fulton, Bedford, Somerset, Fayette, Greene, Washington, Indiana, Butler, Lawrence, Mercer, Erie, and Warren counties. Collecting by O. E. Jennings, D. R. Sumstine, and Dorothy Long, Mr. Buker and Mr. Beer, added about 500 specimens to the total. The Curator's trip to the West netted approximately 1,260 specimens from Texas, Wyoming, and Illinois. These plants not only extend our knowledge of plant distribution but also enhance the value of the herbarium.

In continuing the long-range research program of the Section of Invertebrate Fossils, studies and observations were made during the summer field season by Curator E. R. Eller at outcrops of certain horizons



in Ohio, New York, and Pennsylvania. Small samples were taken that were thought to correlate with samples from subsurface horizons. This material will be dissolved in acid, with the hope that the residues will contain scolecodonts that will correspond to those in certain oil-well cuttings and thus clarify the subsurface geology. Attempts to extend certain western horizons eastward were continued with some success. An outcrop of a Devonian formation, well known in Ohio, Michigan, and Ontario, was located in New York after having been lost for a number of years. Examinations were continued in new cuts and exposures in the topset beds of the Upper Paleozoic deltas, especially in northern Pennsylvania, with the hope that fossil remains or fossil evidence of groups with long gaps in their phylogeny would be found.

Field work on vertebrate fossils was conducted by Curator J. LeRoy Kay, assisted by Mr. and Mrs. John E. Guilday, this summer in Utah, Montana, and British Columbia, under sponsorship of the Childs Frick Corporation. In Utah the time was spent mainly in an area of the Green River

Eocene outcrops where in former years a rather large collection of fossil fishes, reptiles, birds, and mammals had been obtained. This area is unique in being the only place from which such a collection of fossil vertebrates is reported from this very extensive formation. By screening fossiliferous matrix that had been worked out in 1949 and left to weather, sixty specimens of carnivores, condylarths, rodents, lizards, and fish specimens were collected. There is no doubt that when this material is worked up, much of it will prove to be new to science. A number of localities were worked in Montana, the outstanding specimen being a large turtle with both shells and skeleton present, taken from the Oligocene or Miocene sediments in the Pipestone Springs area of Jefferson County, the only specimen of this kind known from this area. A number of specimens were collected from Flint Creek, Granite County, Montana, of Miocene age. A large district between the Canadian Rockies and the Selkirk Mountains drained by the Columbia River to the north and the Kootenay River was worked, and fossil plants collected from tertiary outcrops.

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# SIR ARTHUR SULLIVAN

## COMPOSER FOR STAGE AND CHURCH

BY HOMER WICKLINE



THE Sullivan controversy appears even in the most cursory reading of volumes of musicology stemming from the turn of the century. Charges and counter-charges, adulation, admiration, and unvarnished malice are set down with equal gravity in the florid prose that we associate with Victorian literature. Since November 22, 1950, marked the fiftieth anniversary of the death of Arthur Seymour Sullivan, it might be well to re-assemble some of the facts in the light of a half-century's evaluation.

That Sir Arthur Sullivan was a musical genius no one, then or now, could doubt. Prodigy, master of orchestration, exemplary conductor, hymnologist—Sullivan was all of these and more. Few composers have equalled his ability to weld text and music so that henceforth they would be inseparable. Innumerable examples spring to mind, as "Tit-willow," or "I'm called little Buttercup." The economy and effectiveness of his orchestration, the simplicity and clarity of his vocal line, the transparency and ease of manner in his use of contrapuntal devices are in the best Mozartian tradition.

Born in London on May 13, 1842, Sullivan was the son of the bandmaster and chief professor of the clarinet at Kneller Hall, the English military school of music. His musical gifts were incredible at a very early age. They were enthusiastically recognized and cultured, and flourished in the helpful music climate at Kneller Hall. Speaking reminiscently as an adult, Sullivan recalled that: "Music has been my incessant occupation ever since I was eight years old. All my energies, all my affections, have been bestowed upon it."

In rapid succession followed his chorister days in the Chapel Royal, then, when he was thirteen years old, publication of a sacred song and the new edition of a hymnal, both carrying his harmonies. The following year he was elected the first

Mendelssohn scholar and studied for a year at the Royal Academy of Music, then for three years at the then all-powerful and popular Leipzig Conservatory. The year 1862 brought home-coming, and the immediate triumphant launching of his career by the performance of the incidental music to *The Tempest*, music of great charm and sensitivity. Here we first find the Sullivanesque ability to give a maximum of effect with a cleverly contrived minimum of means. Four years later brought the *Symphony in E*, a work thoroughly orthodox, creating only the most minor ripples in the stream of music—possibly because "the larger forms," as the Leipzig textbooks had called them, were not Sullivan's interest or domain.

The same year brought about two other major works and the beginning of the most unrestrained praise from the critics. Simcoe, writing forty years later, refers to the *In Memoriam Overture* composed at the death of Sullivan's father as outdoing Wagner and as a "fitting companion to Beethoven's Fifth Symphony." The *Cello Concerto* brought similar acclaim.

He was twenty-five years old when the first wedge, as he called it, entered Sullivan's activity, in the quiet and delightful guise of his first operetta, *Cox and Box*. Thereafter his rehearsals alternated between those two strange bedfellows, at least for Victorian times, Stage and Church, in a manner worthy of the plot of *Cox and Box* itself.

In 1875 the sparkling *Trial by Jury* and its thunderous reception created the dual personality that was to haunt Sullivan for the remaining twenty-five years of his life. The great success of the venture was due in part to the previous successes of both Gilbert, as librettist, poet, and essayist, and Sullivan, as composer and conductor; to their solidly established position in English cultural life; and certainly to the rousing performance of Sullivan's brother Frederic as The Learned Judge.

For the remainder of Sullivan's life the

story was one of an almost unblemished perfection. Degrees, honors, shows, lawsuits against imitators and parodists vied harmoniously with his conductorial duties at the Leeds Festivals from 1880 through 1898, and of the London Philharmonic Orchestra from 1885 through 1887. He was proposed for knighthood by Gladstone in 1883.

Sullivan's kind heart and keen wit, his genial humour and infectious vivacity soon made him a "spoiled child of society." One gathers from contemporary comment that he could get on with almost everyone except Gilbert. Sir Arthur was an extremely complex personality whom it would take a very discerning psychologist to interpret. The conflicting ambitions of the two men and their envy of each other's ability partly explain their bitter quarrels, which were watched with breathless interest all over the country.

The surprising thing, perhaps, is that so neurotic and complicated a personality as Sullivan could have produced operettas of such musical gaiety. The tangle of his personality doubtless had many explanations. Sir Arthur Sullivan was a man almost abnormally short in stature, his complexion almost olive-colored. His great admiration for his father was, at his father's death, transferred to his brother, and then later to his mother. Throughout his life he suffered considerably from pain, and it has been said that his shows and morphine brought him the only surcease from suffering. His near desperation to achieve success could doubtless be explained by modern psychology. Sullivan never married. Two beautiful women float through his life, hypothetically considered to have been a sort of joint inspiration. The first was a young friend of his student days at Leipzig, who remained a friend for many years, and the other a prominent American woman, whose relationship with

Sullivan has never been entirely divulged. Mystery veils the part played by these two women in Sullivan's life, the more so probably because his lifetime is so recent that persons still living are involved.

Sir George Grove, a close friend, in his article on Sullivan in the original edition of his dictionary (1883) openly exhibits his personal admiration and that of England for the man and the musician. He quotes two critics who are of the same mind: "He would scorn to write ungrammatically even if he could . . . his refinement is a thousand times more telling than any coarse utterances." Sir George concludes in a wordy flurry: "If his vocal works have gained Sir Arthur the applause of the public, it is in his orchestral music that his name will live



SIR ARTHUR SULLIVAN

among musicians." He then extols Sullivan's form, symmetry, rhythm, melody, sympathy, sense, judgment, proportion, orchestration, in a breathless riot of superlatives.

At times Sullivan's very versatility seemed to annoy others. Many cries of

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Mr. Wickline is widely known as organist, pianist, composer, and conductor. For fifteen years he was organist and assistant conductor of the Mendelssohn Choir, has been organist at many local churches, and for the second season is directing the nurses' chorus at West Penn Hospital. A number of his choral works, art songs, and organ pieces have been published, and a ballet was produced at Carnegie Tech several years ago.

During the War he served with the Coast Artillery in Harbor Defense, and, in his leisure time, was post organist and musical director of a weekly network broadcast.

For the second season Mr. Wickline is directing the Pittsburgh Savoyards, the thirteen-year-old group of local singers founded by Harvey Gaul, which produces Gilbert and Sullivan operettas in carrying out the founder's intention of giving new and young talent in this region an honest hearing. The group will present *Pinafore* on December 9 in the Schenley High School auditorium, *Ruddigore* next May, and plans a Gaul Memorial Concert early in February.



GILBERT AND SULLIVAN'S "THE MIKADO" PRODUCED BY THE SAVOYARDS

"Offenbach!" were heard, implying much that was considered to be the French naughtiness of that composer. An 1891 biography of Sullivan by Florence A. Marshall best expresses Sullivan's schizophrenic problem as it seemed to exist:

"His very popularity has its drawbacks. The serious works are almost sure to call up the memory of his comic works. Such a composer is like some popular comic actor who, standing up to make a serious speech, convulses his audience by the words, 'Ladies and Gentlemen.' Do what he will, everyone recalls his features, not as they are, but as he has exhibited them, reflected, as it were, in the bowl of a spoon."

For us, a half century later, there exists much of the same picture, but considerably mellowed by the passing of years. Of Sullivan's fifty-seven hymn tunes, a half dozen still retain their great popularity, among them, *Onward, Christian Soldiers*; *Nearer, My God, to Thee*; *Angel Voices*, *Ever Singing*; and *Brightly Gleams Our Banner*. Of the many songs, set mainly to distressingly sentimental verses, only *The Lost Chord* has

lived. It is said to be one of the six most popular songs ever written. The church music and oratorios, in spite of Sullivan's own preference for them, are rarely performed. One biographer has dismissed them with: "Sugar dissolved in holy water."

Ironically enough, it is "in the bowl of a spoon" that, contrary to Grove's prophecy, both laymen and musicians revere Sullivan. All the virtues claimed for him by his contemporaries exist in the operettas. We have seen an orchestra rehearsal break up due to the amusement and laughter of the musicians over Sullivan's deft whimsicalities and capers. The woodwinds are a favorite department for these musical antics. The inappropriate manner in which many of the Gilbertian verses are set is topped by strange shrieks, noises, and obligatos. Of the myriad that exist, our own favorite example is the "snickersnee" quotation of the theme from the Bach *Great G Minor Organ Fugue*, which appears as a wayward obligato for an errant clarinet in *The Mikado*.

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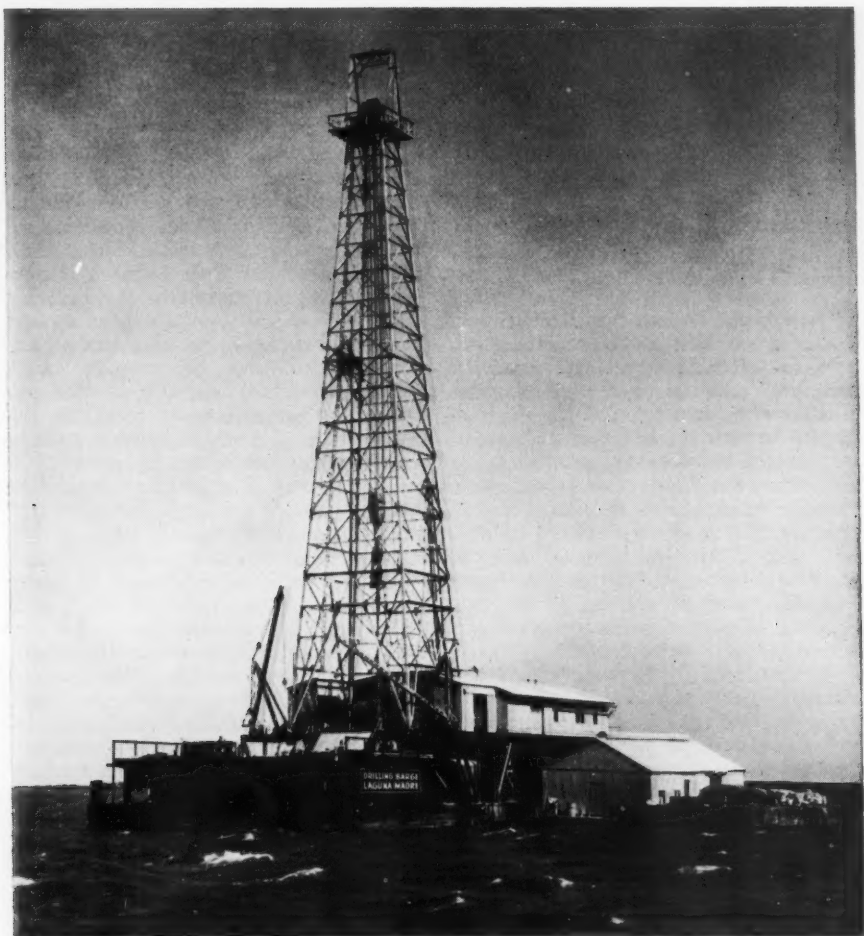
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## THE NATURALIST'S BOOKSHELF

A REVIEW BY M. GRAHAM NETTING

Assistant Director, Carnegie Museum

### THE STORY OF AMERICAN ROADS

By VAL HART

William Sloane Associates, Inc., New York. 1950  
\$3.00

243 pages, 42 photographs, 4 maps

Carnegie Library call no. 625.709 H 31

ONLY in the last quarter-century has it been possible for city dwellers to grow to maturity, travel extensively by road, and still escape the clinging familiarity of their native soil that had besmeared virtually every American prior to that time in the course of extricating an animal or a vehicle from deep mud. I do not mean to imply that mud has been entirely abolished. We still have 861,000 miles of primitive roads on which the enterprising traveler can subject mechanically superior vehicles to the unchanging mire of horse-and-buggy days. However, as we speed across the continent on hard-surfaced roads, complaining because they are not continuous four-lane expressways, we overlook the youthfulness of our paved highway system. The first concrete highway in the United States, a full mile in length, was built in Wayne County, Michigan, in 1909! "The road was the wonder of highway engineers, and they came from all over the United States and Canada to see it."

The history of any country can be told in terms of its developing and changing transportation network, told with greater attention to basic determinants of terrain and climate and with more universal appeal than by means of politico-military treatment. Yet there are hundreds of histories of the latter type for every history of transportation. Many able scholars have written detailed accounts of transportation in given areas or specific periods comparable to Pitt Professor Baldwin's excellent *The Keelboat Age on Western Waters*. Others have laboriously assembled great compendia such as Hulbert's 16-volume *Historic Highways of America*, an invaluable reference for anyone interested in the complete saga of any major highway. There

has been a dearth, however, of factual but entertainingly written summaries which begin with plodding bison, who engineered the early paths so accurately that their major courses are still followed today; books that gather speed as stages succeed pack horses, iron horses supplant canal boats, and automobiles and trucks replace buggies.

In her book *The Story of American Roads* Mrs. Hart has endeavored to sketch the acceleration of American movement from foot-slogging pioneer to, but not including, air travel (Why she remains earth-bound I cannot explain, for today skyways are as vital "roads" as were the waterways that she describes in historical sequence). The idea for this book came, she confesses, from her daughter's question, "Mother, Where do roads start and where do they end?" Her answer is comprehensive enough to encompass major developments in American transportation, brief résumés of our most important roads, the vehicles that moved over them, and the people who constructed and used both.

This volume is one of those that I classify mentally, and entirely unprofessionally, as a family book. Since it lacks the stigmata of being labeled either as a children's book or a history, it will be read for sheer pleasure by children allergic to childish things and by adults wary of footnoted textbooks. It is another worthy contender for the automobile bookshelf; evening reading of appropriate chapters by a touring family will make the next day's drive over a historic highway much more meaningful.

The easy flowing narrative is punctuated with interesting quotations from travelers who survived but usually complained about the speedy transport of their day. In 1800 "the wretched condition of America's roads discouraged any but the most necessary journey, and except for adventurers and visiting Europeans, there was little if any travel for sightseeing; no sight would have been worth the pain,"



Mrs. Hart contends. It ill behooves me to dispute the conclusion of a skilled historical researcher, but I have a heretical suspicion that many Americans who were inured to the rigors of the frontier or hardened by long contact with the saddle found the jolting stagecoach high adventure, but were less literate than the genteel complainers.

*The Story of American Roads* is not limited to any region of the country, but it has a special meaning for Pennsylvanians since much of America's transportation history was made in this State. About 1750, on the banks of Conestoga Creek in Lancaster County, an unknown genius fashioned the superbly efficient freight wagon which flaunted its patriotic blue underbody, red upper-work, and white canvas across the Alleghenies, and subsequently rumbled to the end of the Oregon Trail, colors gone and its name changed to prairie schooner. (In Pittsburgh five-for-a-cent stogies were rolled for the hardy Conestoga drivers who preferred a long smoke to choice tobacco.) The steamboat had its first beginnings elsewhere, but its real evolution on the upper Ohio. In Pennsylvania the mountain barrier to westward movement was conquered by the unique engineering marvel of 1834, the Pennsylvania Canal and Portage Railroad, a joint railroad-canal system which sped express passengers from Philadelphia to Pittsburgh in a record time of five days.

The ancestor of the Pennsylvania Turnpike, one of the finest modern highways, was the Lancaster Turnpike, our nation's first major hard-surfaced road. In 1794, Lancaster, then the largest town in the country not situated on water and the bread-basket of the coastal areas to the East, was tied to Philadelphia by a privately financed road of broken limestone and gravel, 24 feet in width and with grassy slopes on each side. It was then probably the only 60-mile stretch of road in the country over which a traveler could ride in comparative ease and without fear of being mired, drowned, or jolted to pieces—as late as 1815 stage horses and passengers were occasionally drowned on the Washington-Baltimore Road. A long pike-studded pole served as a toll barrier about every seven miles on the Lancaster road, and the swinging aside of this barrier

after payment of toll gave us "turnpike."

Mrs. Hart has woven into her tale a wealth of interesting information. She explains, for example, the origin of the terms "I'll be there with the bells on" and "jerk-water" railroads, and traces the development of the safety bicycle from the French celeripede—hobby horse to you. Bicycles, incidentally, have an integral place in this story because cycling clubs actually started the Good Roads Movement. She emphasizes repeatedly that as each new form of transport developed, the vehicle itself was rapidly perfected to the point where it was far superior to the surface over which it traveled. New forms of transportation were devised by visionaries who had to battle for the practicality of their ideas, and there was invariably strong public protest against the changes and economic disruption occasioned by the new development. I recall reading that the citizens of one community opposed the B & O because it would frighten their "hogs and wives" and Mrs. Hart points out that as late as 1914 the possibility of traveling coast-to-coast over good roads was considered an improbable dream.

The 42 photographs illustrate interesting steps in the development of transportation in the United States, and the 4 maps portray clearly the routes of colonial days, later routes of eastern United States, the trails so important in the opening of the West, and finally the Alaska to Buenos Aires highway now approaching completion.

American ingenuity has always developed vehicles to meet the needs of the times. Very recently we have begun to build roads worthy of the rolling stock that uses them. We must now begin to give greater consideration to the necessity of preserving the scenic beauty of the landscape through which our great highways pass. In most parts of the country legislation is woefully inadequate to prevent improper development of the areas adjacent to great arterial highways. As better roads are built they will be flanked with bigger and flashier neon-lighted roadside establishments unless we insist that zoning regulations are extended to our highways so that Americans who can now travel in comfort may enjoy scenery missed by ancestors intent on dodging mudholes.

# From far Places



Heinz Collection . . . Carnegie Institute

FOR a thousand years this ivory Buddha has smiled with wisdom and subtlety upon the comings and goings of man. Cambodia was its first home . . . perhaps it came from a shrine in the great temple at Angkor Wat, where the elephant was specially honored by a celebrated frieze.

- Between Buddhism, the elephant, and ivory there was a peculiar affinity. A white elephant was said to have been the last incarnation of Gautama, before he assumed human form and attained the dignity of Buddha. And ever after white elephants were held sacred as living memorials in Buddhist lands.

- The figure of Buddha, carved of ivory, achieved an intimacy precious and meaningful to the devout. Perhaps it is because of this very union that our figure exists today. For he has obviously been treasured down the ages.

- The pedestal is rough-grained, with the splintery quality of ancient wood. But the body is smooth and lustrous as though it had been caressed by generations of the faithful. Little and old and yellowed with time, minus an ear and an arm, it yet has a dignity and spiritual glow that out-shines, by far, more sleek and richer pieces.

- In our cuisine, too, many simple, savory dishes, like the home-style foods prepared by H. J. Heinz, afford abiding satisfaction.

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